

Title (en)  
Hydraulic drive system for civil-engineering and construction machine

Title (de)  
Hydraulisches Antriebssystem für Baumaschinen

Title (fr)  
Entraînement hydraulique pour des machines pour travaux publics

Publication  
**EP 0462590 B1 19951227 (EN)**

Application  
**EP 91110047 A 19910619**

Priority  
JP 15874490 A 19900619

Abstract (en)  
[origin: EP0462590A1] A hydraulic drive system for a civil-engineering and construction machine, comprising an unloading valve (17) connected to a discharge line (15) of a hydraulic pump for relieving a hydraulic fluid from the hydraulic pump (9) to a tank (16) when a differential pressure between a delivery pressure of the hydraulic pump and a load pressure of an actuator (2) exceeds a first predetermined value, for controlling the differential pressure. The unloading valve has a spool (18), a first receiving chamber (19) at the one end of the spool receiving the delivery pressure of the hydraulic pump, and a second pressure receiving chamber (19) arranged at the other end of the spool receiving the load pressure of the hydraulic actuator. Restrictive communication means (30, 31, 32) selectively communicate the first and the second pressure receiving chamber with each other, whereby when a phase deviation exists between the delivery pressure and the maximum load pressure, oscillation of the unloading valve is prevented. <IMAGE>

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**F15B 11/05**

IPC 8 full level  
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CPC (source: EP KR US)  
**E02F 9/2232** (2013.01 - EP US); **E02F 9/2235** (2013.01 - EP US); **E02F 9/2296** (2013.01 - EP US); **F15B 11/05** (2013.01 - KR); **F15B 11/165** (2013.01 - EP US); **F15B 2211/20538** (2013.01 - EP US); **F15B 2211/20553** (2013.01 - EP US); **F15B 2211/253** (2013.01 - EP US); **F15B 2211/30535** (2013.01 - EP US); **F15B 2211/3111** (2013.01 - EP US); **F15B 2211/3144** (2013.01 - EP US); **F15B 2211/31576** (2013.01 - EP US); **F15B 2211/324** (2013.01 - EP US); **F15B 2211/50536** (2013.01 - EP US); **F15B 2211/71** (2013.01 - EP US); **Y10T 137/87185** (2015.04 - EP US)

Cited by  
CN102197181A; FR3054007A1; EP1635072A1; EP2759712A4; GB2257270A; GB2257270B; US9651061B2; US8091355B2; WO2010048081A1

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